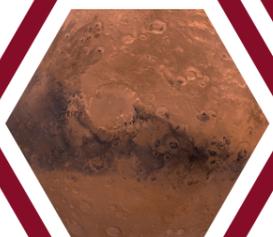


# #CHEMMONTHLY JULY 2018

## WATER LAKE DETECTED UNDER MARTIAN ICE CAP



Radar data has shown that there is liquid water beneath the southern ice cap of Mars. The water likely has a temperature between  $-103$  and  $-3$  °C, with dissolved salts and the high pressure of the ice above keeping it liquid. It is the first detection of liquid water on Mars.

## SOLVENT HELPS MAKE CRISPS BAGS MORE RECYCLABLE



Crisp packets are difficult to recycle, as they contain bonded layers of various polymers. A 'switchable' solvent, *N,N*-dimethylcyclohexylamine, dissolves the polymers and breaks them apart. The polymers, aluminium, adhesives, inks, and coatings can all be recovered.

## ALGAE TRAP MERCURY IN DEEP SEA SEDIMENTS



Algae called diatoms absorb mercury dissolved in seawater, trapping it in ocean sediments when they die. It's estimated they absorbed 20% of the mercury humans released into the atmosphere in the past 150 years, meaning we may have underestimated mercury emissions.

## HYDROGEN BOND LENGTH AFFECTS SUGAR SWEETNESS



Monosaccharide sugars, glucose, fructose and mannose, have similar structures but varying sweetness. Scientists have found that differences in their three-dimensional arrangements change how they form hydrogen bonds with water, affecting sweetness.

## MASS SPECTROMETRY HELPS SPOT FORGED BURNS POEMS



The poems of the Scottish poet Robert Burns are often forged. A new technique is able to spot the fakes. Infusion nanospray mass spectrometry allows chemical fingerprints of authentic inks to be generated. It could be used to test other historical documents.

## TEXTBOOK REACTION MECHANISM IS EXCEPTION, NOT RULE



New research confirms that widely used nucleophilic aromatic substitution reactions don't happen by the two-step process that textbooks describe. The reactions don't proceed via the predicted intermediate in the majority of cases, instead occurring in one step.

## RISING OCEAN CO<sub>2</sub> AFFECTS FISH SENSE OF SMELL



A new study shows that small changes in seawater acidity, caused by dissolved carbon dioxide, affect the ability of sea bass to find food and avoid predators. The study used levels of CO<sub>2</sub> 2.5 times higher than present day levels – levels predicted for the end of this century.

## KEY STEP IN BODY ODOUR PRODUCTION IDENTIFIED



Scientists have identified the protein by which bacteria in our underarms take up odourless sweat compounds and convert them into 3-methyl-3-sulfanylhexan-1-ol, one of the key components of body odour. Products that target the protein could block its production.

For links to articles and studies, visit: [bit.ly/chemmonthlyjuly18](http://bit.ly/chemmonthlyjuly18). Follow @Chemunicate or #ChemMonthly on Twitter to keep up with the latest chemistry news!



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